1.877.726.3243 | www.rand.com

©1999 RAND WORLDWIDE. ALL RIGHTS RESERVED.

AdvancedTEXT

CAND™
WORLDWIDE

Let **Knowledge** be your guide.

AdvancedTEXT

USER GUIDE Version 2.20

RAND™
WORLDWIDE
Let **Knowledge** be your guide.

Product names mentioned herein may be trademarks and/or registered trademarks of their respective companies. The software described in this guide is furnished under a license agreement. The software may be used or copied only in accordance with the terms of the agreement. Information in this document is subject to change without notice. RAND Worldwide shall not be liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this manual. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of RAND Worldwide.

©1999 RAND Worldwide. All rights reserved.

Contents

Introduction ____ iii

Supported Platforms ____ iii

Installing AdvancedTEXT on Windows NT ____ 1

Installing AdvancedTEXT on UNIX ____ 3

Pro/TOOLKIT Registration File ____ 5

License Setup ____ 6

Installation Test ____ 7

Setting Up Fonts ____ 7

Uninstalling AdvancedTEXT on Windows NT ____ 8

Uninstalling AdvancedTEXT on UNIX ____ 8

Menus & Usage ____ 9

Available Menu Options ____ 12

Examples ____ 14

Notes & Hints ____ 18

Fonts ____ 19

Font Links ____ 20

Technical Support ____ 21

Introduction

AdvancedTEXT is a plug-in application for Pro/ENGINEER. It shortens the time designers spend creating NC machinable text on Pro/ENGINEER solid models by enabling designers to create parametric text based on smooth and scalable fonts, either in-line or on an user defined radius, all from within Pro/ENGINEER.

AdvancedTEXT eliminates the time consuming task of creating text in non-integrated packages and then importing the non-parametric text into Pro/ENGINEER. Engineering time is further reduced when changes to the text are required. The parametric nature of the application allows users to quickly change text attributes without re-creating and re-importing the text from scratch.

AdvancedTEXT can utilize any TrueType font (*.ttf), including standard types already in use at your company, with a simple drag and drop. Many companies have their company font, logos, bar codes, and other corporate and industry specific entities in TrueType format that can now be utilized in their CAD application.

The outlines of characters (glyphs) in TrueType fonts must always be closed. It means, that the characters always have some (positive) thickness and can be filled. TrueType glyps cannot be thin (with open ends). That is why AdvancedTEXT supports also thin fonts in its own format (*.rlf). Outlines in thin fonts do not have to be closed, which is sometimes very useful for text manufacturing.

Supported Platforms

Hardware and Operating Systems

Intel-based PCs running Microsoft Windows NT 4.0 or higher
Sun Microsystems workstations running Solaris 2.6 or higher

Software

AdvancedTEXT 2.20 requires Pro/ENGINEER v. 20.0 (9833) or higher.

Installing AdvancedTEXT on Windows NT

1. Log into your system as the administrator.
2. Close all other programs including Pro/ENGINEER.
3. Run the installation utility: setup.exe
4. Follow the instructions presented on your screen.
5. The installation utility performs the following tasks:
   - Installs AdvancedTEXT to the user defined loadpoint (e.g. C:\Apps\AdvText). If the user defined loadpoint exists, the install program asks the user if they want the current version of AdvancedTEXT saved to another directory. If the user answers yes, the files are copied to AdvText_Old. If the user answers no, the current files are overwritten with the new files.
   - Sets following environment variables (if the variables already exist, their values are not changed):

AU_HOME	directory software is installed (ADVT_LOADPOINT)
AU_LOCAL_DIR	local directory of the computer where the license paswords are stored (ADVT_LOADPOINT)
AU_LANGUAGE	language selection (e.g. ENGLISH for an English install)
AU_BASE	not used with a local license but must exist (Default)

This can also be done manually through: Control Panel > System > Environment (set as SYSTEM variables)

- Optionally adds an entry to your config.pro pointing to the protk.dat file in the user defined loadpoint (e.g. prodevdat C:\Apps\AdvText\protk.dat).

  If the config.pro file is not updated, the user must manually copy the file protk.dat to the Pro/E loadpoint.

Installing AdvancedTEXT on Windows NT (cont'd)

6. Confirm config.pro has prodevdat line that points to protk.dat or that a copy of protk.dat is in the Pro/E launch directory.
7. Confirm environment variables. This can be done at the command prompt by typing: set au
8. After reboot, the License Manager program is automatically started (for more information, see the License Setup section).
9. AdvancedTEXT is now fully installed.

Installing AdvancedTEXT on UNIX

1. Log into your system as the root (recommended).
2. Close all other programs including Pro/ENGINEER.
3. Run the installation utility: setup
4. Follow the instructions presented on your screen.
5. The installation utility performs the following tasks:
   - Installs AdvancedTEXT to the user defined loadpoint (e.g. /apps/advtext) If the user defined loadpoint already exists, the install asks the user if they want the current version of AdvancedTEXT saved to another directory. If the user answers yes, the files are copied to advtext_old. If the user answers no, the current files are overwritten with the new files.
   - Sets following environment variables (if the variables already exist, their values are not changed):

AU_HOME	directory software is installed (ADVT_LOADPOINT)
AU_LOCAL_DIR	local directory of the computer where the license paswords are stored (ADVT_LOADPOINT)
AU_LANGUAGE	language selection (e.g. ENGLISH for an English install)
AU_BASE	not used with a local license but must exist (Default)

This can be done manually:

- For C-shell users, place in $HOME/.cshrc:

  setenv VARIABLE_NAME VALUE

- For Korn-shell users, place in $HOME/.kshrc:

  VARIABLE_NAME=VALUE
  export VARIABLE_NAME

- Optionally adds an entry to your config.pro pointing to ADVT_LOADPOINT/protk.dat (e.g.prodevdat /apps/advtext/protk.dat).

Installing AdvancedTEXT on UNIX (cont'd)

If the config.pro file is not updated, the user must manually copy the file protk.dat to the Pro/E loadpoint.

6. Confirm config.pro has prodevdat line that points to protk.dat or that a copy of protk.dat is in the Pro/E launch directory.
7. Confirm environment variables. This can be done at the command prompt by typing: env | grep AU
8. Log out and log in again.
9. Run the License Setup program (for more information, see the License Setup section).
10. AdvancedTEXT is now fully installed.

Pro/TOOLKIT Registration File

In order for Pro/ENGINEER to use a plug-in application (e.g. AdvancedTEXT), it must first read a registration file called protk.dat which contains the path to the Pro/TOOLKIT executables. The AdvancedTEXT installation utility creates this protk.dat file for you in the AdvancedTEXT loadpoint.

Pro/ENGINEER looks for this file upon launching in three ways:

1. A callout in config.pro (recommended). A sample syntax: prodevdat /apps/advtext/protk.dat
2. A protk.dat in the text subdirectory of the Pro/ENGINEER loadpoint.
3. A protk.dat in the directory Pro/ENGINEER is launched.

The installation script prompts the user whether or not to add a line to the config.pro. If declined, either option 2 or 3 above must be completed prior to using AdvancedTEXT.

If the user installs AdvancedTEXT to a differenet location than the default, it is necessary to modify the contents of the registration file to match the installation directory:

Windows NT

EXEC_FILE ADVT_LOADPOINT\advtext.dll
TEXT_DIR ADVT_LOADPOINT\text

UNIX

EXEC_FILE ADVT_LOADPOINT/advtext.dll
TEXT_DIR ADVT_LOADPOINT/text

License Setup

A license is required for copies of AdvancedTEXT (demo or fixed). It is required on all machines. The installation script prepares the machine for the license.

The License Manager can be launched by the AdvancedTEXT installation program. To run the program later, the License Manager executable can be found at the AdvancedTEXT loadpoint in a subdirectory called Bin.

Record the computer identification number from the first screen in the License Manager. This number must be sent to RAND Worldwide (license.cork@rand.com). To obtain the license, three items of information must be e-mailed to RAND:

- computer identification number
- type of license needed (fixed or temporary)
- hardware type and operating system version

After you receive the license passwords from RAND Worldwide, run the License Manager program again.

To setup a license, follow these steps:

- Select the Install Local License option from the first screen.
- Select the type of license for AdvancedTEXT (fixed, temporary, or technical support).
- Enter license passwords sent to you by RAND Worldwide.

  If you have a fixed license, you receive two passwords. One password is for the license and the other is for AdvancedTEXT.

  If you have a temporary license, you received only one password.

- If the license setup is successful, you will get a message "Registered Password". The License Manager program creates a password file localpas.txt in the AdvancedTEXT loadpoint.

Installation Test

To verify that AdvancedTEXT works correctly, follow these steps:

- Start Pro/ENGINEER.
- From the menu bar select Utilities > Auxiliary Applications...
- Pro/ENGINEER displays the Auxiliary Applications dialog.
  Now press the Info button.
- An info window with a list of registered applications appears.
  If everything is OK, the paragraph for AdvTEXT should contain the following message: "Application is running."

Setting Up Fonts

AdvancedTEXT looks for fonts in a subdirectory called fonts in the application loadpoint. You may add your own fonts (*.ttf or *.rlf) to this directory. The newly added fonts can be immediatelly used in AdvancedTEXT.

Uninstalling AdvancedTEXT on Windows NT

1. Log into your system as the administrator.
2. Remove the license. Run the License Manager and select Uninstall Local License option.
3. Remove AdvancedTEXT Program: Control Panel > Add/Remove Programs > AdvancedTEXT > Add/Remove...
4. Remove AdvancedTEXT loadpoint. Using explorer, delete the loadpoint (e.g. C:\Apps\AdvText).
5. Remove prodevdat entry from config.pro.
6. Remove the settings for environment variables from your system (if they are not used by another application).
7. Reboot your computer.

Uninstalling AdvancedTEXT on UNIX

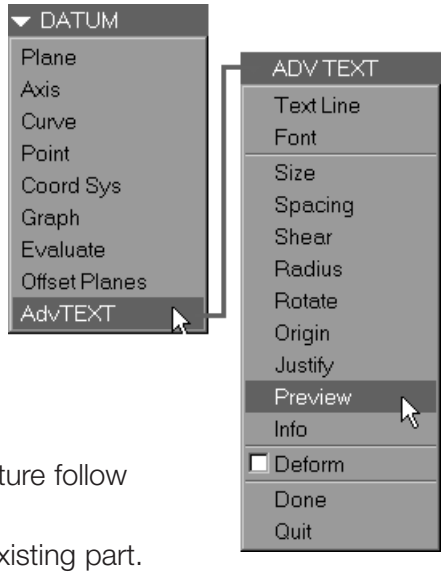
1. Log into your system as the root.
2. Remove the license. Run the License Manager and select Uninstall Local License option.
3. Remove AdvancedTEXT loadpoint (rm -r /apps/advtext).
4. Remove prodevdat entry from config.pro.
5. Remove the settings for environment variables from your system (if they are not used by another application).

Menus & Usage

AdvancedTEXT adds three menu selections to Pro/ENGINEER: AdvText, AdvT Modify and AdvT Redefine.

AdvancedTEXT Feature Creation

The AdvText menu option, located in the DATUM menu, creates new AdvancedTEXT features.



To create a new AdvancedTEXT feature follow these steps:

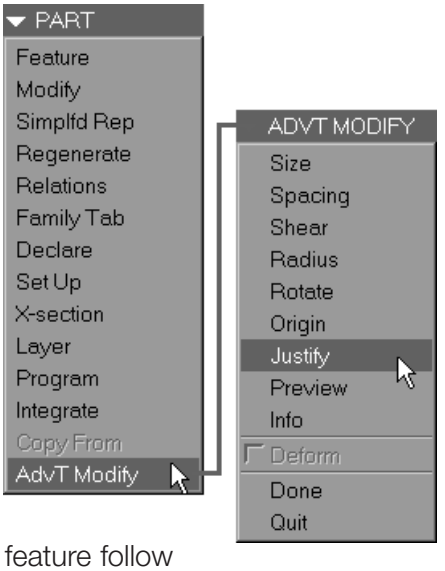
1. Create a new part or open an existing part.
2. Select Feature > Create > Datum > AdvText.
3. Select a text placement/sketching plane.
4. Select the viewing direction. The text "aa" will appear, showing the current direction. Select the menu Flip or Okay.
5. Select the horizontal or vertical reference plane. As with any sketched feature, this plane must be a plane or a planar face perpendicular to the text placement plane.
6. Select the third planar reference, orthogonal to the previous two planar selections, to define the text origin. Text can later be offset from the origin.
7. The ADV TEXT menu appears. Use the options from this menu to control the shape of the text. Available options are listed in the table below.

AdvancedTEXT Feature Modification

The AdvT Modify menu option, located in the PART menu, allows the user to modify existing AdvancedTEXT features.

The ADVT MODIFY menu allows to change only those text parameters, that do not need the section to be re-created. The user is allowed to make only such changes (transformations), that do not change the number and type of section elements.

During modification the user is not allowed to change the text line, font and deformation. On the other hand, when the changes are done, the design consistency should stay intact.



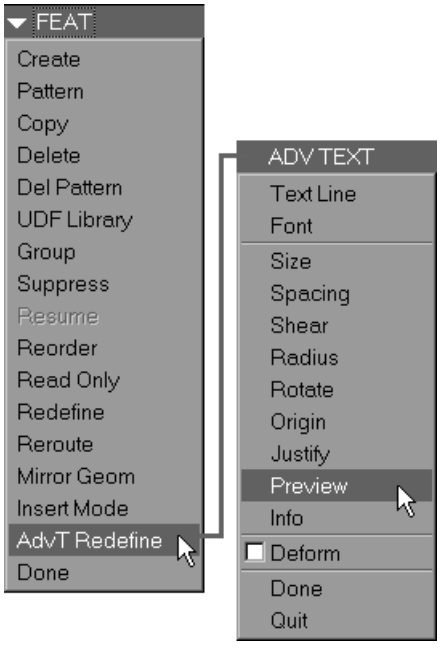
To modify an existing AdvancedTEXT feature follow these steps:

1. Select Part > AdvT Modify.
2. From the GET SELECT menu, select the AdvancedTEXT feature to be modified.
3. The ADVT MODIFY menu appears. Use the options from this menu to modify text parameters. All available options have the same function as during the feature creation (ADV TEXT menu). The font, text line and deformation flag cannot be modified.

AdvancedTEXT Feature Redefinition

The AdvT Redefine menu option, located in the FEATURE menu, can be used to redefine existing AdvancedTEXT features. This option allows to redefine all parameters of the AdvancedTEXT feature (including the text line, font and deformation).

In this case the section must always be re-created. This may lead to regeneration failures, if there are any features in the model, that use the redefined text as a reference. After the redefinition it is usually necessary to re-establish the relation between the text (datum curve) and its child features.

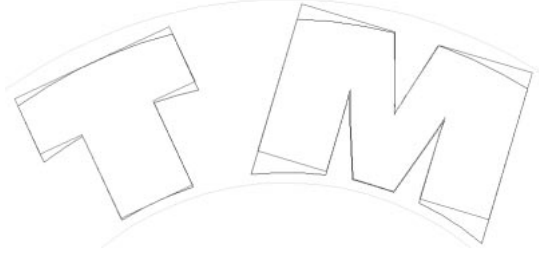


To redefine an existing AdvancedTEXT feature follow these steps:

1. Select Feature > AdvT Redefine.
2. From the GET SELECT menu, select the AdvancedTEXT feature to be redefined.
3. The ADVT TEXT menu appears. Use the options from this menu to change text parameters.
4. Resolve possible regeneration problems of dependent features.

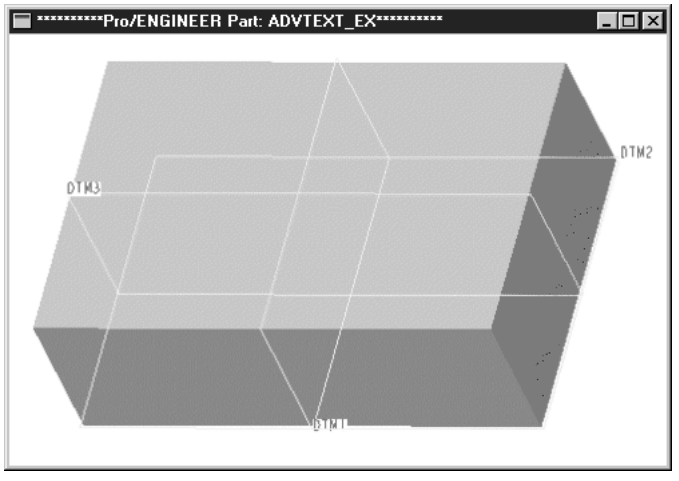
Available Menu Options

Menu option	Action
Text Line	Enter the text string
Font	The SEL TTF FONT menu appears. It shows a list of available fonts in the ADVT_LOADPOINT/fonts directory. Select the desired font file.
Size	Enter the character height in model units. Allowed range is 0.01 to 1000.
Spacing	Enter the additional spacing between characters. The value represents a percentage of the character cell size. Allowed range is -100 to 200.
Shear	If you want to skew the text, enter the desired slant angle in degrees. Allowed range is -60 to 60.
Radius	If you want to place the text on a circular arc, enter the radius. If radius = 0, then the text will be placed on a line. The radius can also be negative. In this case the bottom of the text is towards the outer edge of a round part.
Rotate	If desired, enter the rotation angle (in degrees). Allowed range is -360 to 360.
Origin	The origin (0, 0) is defined by the intersection of the selected vertical and horizontal reference. This option enables you to move the text with respect to this origin. Enter the desired X and Y coordinates.
Justify	The JUSTIFY menu appears. Select the justification with respect to the vertical reference. Available options: Left, Center, Right
Preview	This option provides a preview of the text being created. Use this command every time you change the text parameters to check, whether the text looks as you expect.
Info	Displays an AdvancedTEXT information window. The window contains information about the application and current values of all AdvancedTEXT parameters.

Menu option	Action
Deform	This checkbox can be enabled only when you place the text on arc (radius <> 0). It works with TrueType (.ttf) fonts only, not with the thin fonts (.rlf). When the checkbox is on, then horizontal linear segments of the text outline are replaced with arcs. The text looks as it truly lies on the arc. The following picture shows the effect of the deformation: • green text: deformation OFF • red text: deformation ON 
Done	After selecting the desired text parameters, this menu will create the actual datum curves. This process may take a few minutes depending on your hardware, font complexity and text length.
Quit	Aborts the AdvancedTEXT feature creation.

Examples

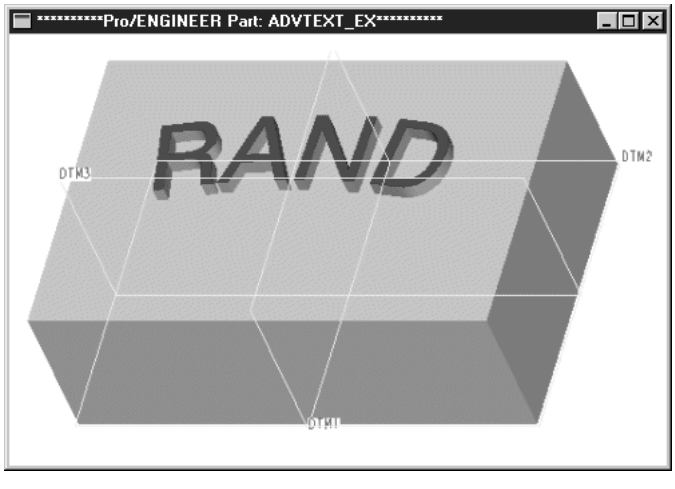
1. Create a new part with default datum planes (DTM1, DTM2, DTM3).
2. Create a block (for example: 6 x 4 x 2)



AdvancedTEXT Feature Creation

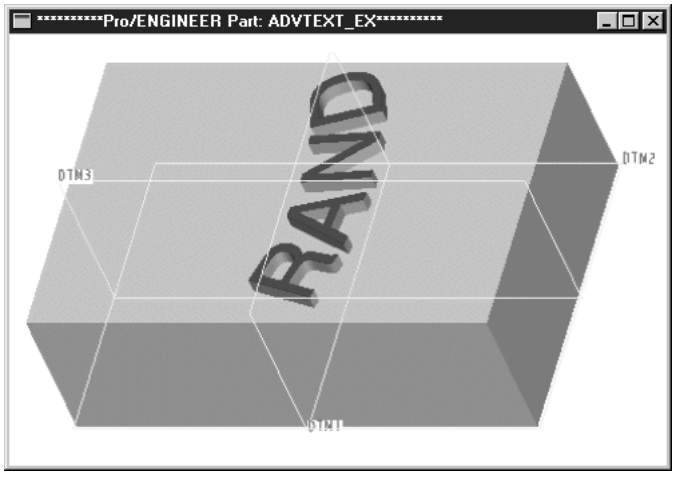
1. Select Create > Datum > AdvText.
2. Select the text placement/sketching plane. Pick the top of the part.
3. Select the viewing direction. Select Okay.
4. Select the horizontal/vertical reference plane. Select Bottom and pick DTM3.
5. Select a third plane, orthogonal to the first two planes, to define the origin of the text. Pick DTM1. Text can be offset from the origin later.
6. Set the text attributes:
   - Text Line: RAND
   - Font: swiss.ttf (Swiss 721 BT)
   - Size: 1
   - Justify: Center
7. Select Preview.
8. Now you can change other attributes. Try a Radius of 10. Be sure to change the origin to x = 0, y = -10.

9. Before you select Done, always check the text settings using Preview.
10. Select Done. AdvancedTEXT creates datum curves that can then be used in protusions, cuts, and other features.
11. Create a protrusion: Feature > Create > Solid > Protrusion > Extrude > Solid > Done > One Side > Done.
12. Select the same placement plane and horizontal/vertical reference plane as before.
13. In Sketcher, select Geom Tools > Use Edge > Sel Loop.
14. Select edges of the letters.
15. Continue until all of RAND is highlighted. (HINT: On larger words/sentences, use serveral protrusions).
16. Regenerate. Zoom in if necessary.
17. Done. Depth = 0.2
18. Shade and spin.
19. Try modifications with AdvT Modify command in the PART menu (see below).



AdvancedTEXT Feature Modification

1. Select Part > AdvT Modify.
2. Using the GET SELECT menu, select the AdvancedTEXT feature to be modified (use the datum curve created in the previous section).
3. The ADVT MODIFY menu appears. All available options have the same function as during the feature creation (ADV TEXT menu). The font, text line and deformation cannot be modified.
4. Try the following changes:
   - Size: 0.9
   - Spacing: 10
   - Radius: -5
   - Rotate: 90
   - Origin: x = -4, y = 0
5. Check the text settings using Preview.
6. Select Done. AdvancedTEXT feature will be updated together with the child protrusion.

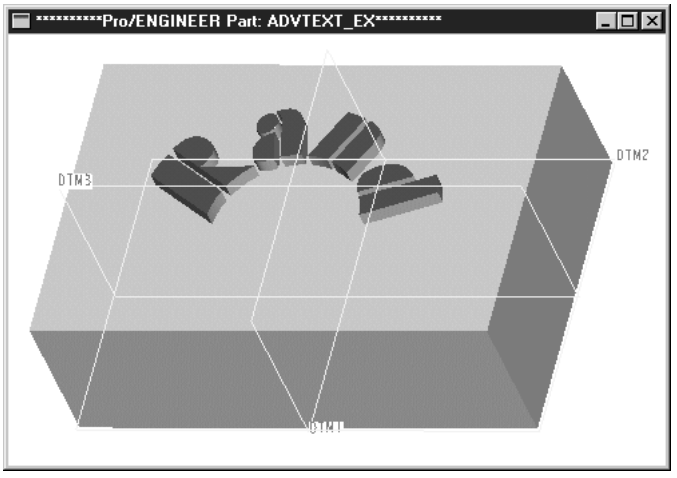


AdvancedTEXT Feature Redefinition

1. Select Feature > AdvT Redefine.
2. Using the GET SELECT menu, select the AdvancedTEXT feature to be redefined (use the datum curve modified in the previous section).
3. The ADVT TEXT menu appears. Use the options from this menu to change text parameters.
4. Try the following changes:
   - Text Line: Rand
   - Font: futura.ttf (Futura Black BT)
   - Size: 1
   - Spacing: 0
   - Shear: 5
   - Radius: 1
   - Rotate: 0
   - Origin: x = 0, y = -0.5
   - Deform: ON
5. Check the text settings using Preview.
6. Select Done. The protrusion will fail to regenerate, because its references (section) have changed. Now it is necessary to redefine the failed feature.
7. From the RESOLVE FEAT menu select Fix Model > Feature > Redefine > Failed Feat.
8. The PROTRUSION: Extrude dialog appears. From the list of feature elements select Section and press the Define button.
9. From the SECTION menu select Sketch.
10. Now delete all elements from the old section. In sketcher, select Delete > Delete All.
11. Set the display mode to wireframe to see the datum curve properly (the old text outline may remain displayed in green).
12. Select Geom Tools > Use Edge > Sel Loop.
13. Select edges of the letters (orange). Continue until all of Rand is highlighted.
14. Regenerate. You may need to align the text origin to the datum plane DTM1 to be able to regenerate the section. Zoom in if necessary.
15. Done.

AdvancedTEXT Feature Redefinition (cont'd)

16. Press the OK button in the PROTRUSION: Extrude dialog.
17. The feature failure should be resolved now. The new shape of the protrusion corresponds to the underlying AdvancedTEXT feature again.



Notes & Hints

The regeneration of the text can be time consuming for long text strings and complex fonts. Try a short string and a simple font (e. g. Swiss) first.

Some font characters do not meet the requirements for a Pro/ENGINEER section sketch. For example, some segments may intersect and require manual clean-up before creating a protrusion or cut.

The AdvancedTEXT feature cannot be modified if the font file used for that feature's creation no longer exists or if the sketch geometry was changed since that feature's creation (e.g. if the user manually deletes a segment of the outline or an entire letter).

Fonts

Fonts in the Package

AdvancedTEXT comes with 25 fonts located in ADVT_LOADPOINT/fonts directory. Users can add their own fonts to this directory for immediate use within AdvancedTEXT.

TrueType Fonts (*.ttf)

Font Name	File Name	Note
Brush Script BT	brushscript.ttf	decorative script
Century Schoolbook BT	century.ttf	serif
Century Schoolbook Bold BT	centuryb.ttf	serif
Century Schoolbook Bold Italic BT	centurybi.ttf	serif
Century Schoolbook Italic BT	centuryi.ttf	serif
Commercial Pi BT	comm_pi.ttf	symbols
Exotic 350 Bold BT	exoticb.ttf	sans serif
Formal Script 421 BT	formalscript.ttf	decorative
Futura Black BT	futura.ttf	decorative
Geometric 231 Bold BT	geometricb.ttf	sans serif
Lydian Bold BT	lydianb.ttf	sans serif
Lydian Bold Italic BT	lydianbi.ttf	sans serif
News 701 BT	news.ttf	serif
News 701 Bold BT	newsb.ttf	serif
News 701 Italic BT	newsi.ttf	serif
Newspaper Pi BT	newspaper_pi.ttf	symbols
Stencil BT	stencil.ttf	decorative
Swiss 721 BT	swiss.ttf	sans serif
Swiss 721 Bold BT	swissb.ttf	sans serif
Swiss 721 Bold Italic BT	swissbi.ttf	sans serif
Swiss 721 Italic BT	swissi.ttf	sans serif
Symbol Proportional BT	symbols.ttf	symbols
Universal Math 1 BT	univ_math.ttf	greek letters + math symbols

Fonts in the Package (cont'd)

Thin Fonts (*.rlf)

Font Name	File Name	Note
CSN Normal	csnn.rlf	technical script (default font)
CSN 45 Normal	csn45.rlf	technical script condensed

Font Links

General

TrueType Typography	www.truetype.demon.co.uk
Microsoft Typography	www.microsoft.com/typography
Phil's Fonts	www.philsfonts.com

Font & Typography Tools

Macromedia Fontographer	www.macromedia.com
Pyrus	www.pyrus.com

Technical Support

If you encounter any problems while installing or using AdvancedTEXT, you may contact RAND Worldwide Technical Support:

RAND Worldwide
5285 Solar Drive
Mississauga, Ontario Canada
L4W 5B8

Tel: 1.800.625.7263
Fax: 905.625.6843